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RYAN, MASON & LEWIS, LLP
90 FOREST AVENUE
LOCUST VALLEY, NY 11560

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte DAVID E. CLUNE, HANAN Z. MOLLER,
and DAVID P. SONNIER

_____

Appeal 2009-07312[1]
Application 10/037,067
Technology Center 2400

_____

Before JAMES D. THOMAS, JEAN R. HOMERE, and
CAROLYN D. THOMAS, *Administrative Patent Judges*.

HOMERE, *Administrative Patent Judge*.

DECISION ON APPEAL[2]

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[1] Filed December 21, 2001. The real party in interest is LSI Logic, Corp.
(App. Br. 1.)
[2] The two-month time period for filing an appeal or commencing a civil
action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing,
as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE"
(paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery
mode) shown on the PTOL-90A cover letter attached to this decision.

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) (2002) from the Examiner's final rejection of claims 1-11, and 13-15. Claim 12 has been canceled. (App. Br. 2.) We have jurisdiction under 35 U.S.C. § 6(b) (2008).

We affirm.

Appellants' Invention

Appellants invented a method and apparatus for processing a plurality of destination nodes of a multicast session in a data network by traversing a circularly linked list of nodes, each containing an associated destination address for receiving multicast data and an associated link designating a next destination node. (Fig. 3, spec. 6, l. 15-spec. 7, l. 15.)

Illustrative Claim

Independent claim 1 further illustrates the invention as follows:

1. A method for identifying destination nodes of a multicast session in a network having a plurality of nodes, comprising:

forming a circularly linked list further comprising a list of destination nodes, each destination node having an associated destination address for receiving multicast data and a link to a next destination node in the list for processing;

entering the list at an initial destination node;

traversing the linked list to process each destination node, for each destination node, sending the multicast data to the associated destination address and using the link to determine the next destination node for processing; and

terminating the traversing step when all linked destination nodes have been processed.

Prior Art Relied Upon

The Examiner relies on the following prior art as evidence of unpatentability:

Bonomi   US 6,219,352 B1   Apr. 17, 2001

Knuth, *"The Art of Computer Programming"*, Second Edition, Vol. 1 *"Fundamental Algorithms"*, pgs. 228-231 and 270-273, Addison-Wesley Pub. Co. Inc. 1973.

Rejection on Appeal

The Examiner rejects claims 1-11, and 13-15 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Bonomi and Knuth.

Appellants' Contentions

Appellants contend that the disclosures of Bonomi and Knuth are not properly combined to render independent claim 1 unpatentable. (App. Br. 5-8, Reply Br. 2-5.) In particular Appellants argue that there is insufficient rationale for combining the references to teach the storage of multicast groups in a circularly linked list. (Brief 6.) According to Appellants, while Knuth discusses some general advantages of a circularly linked list as an abstract data type, the reference is silent on whether the cited list can be used as a storage device for storing multicast groups such as those disclosed in Bonomi. (*Id.*) Further, Appellants argue that even though the techniques of multicasting and circularly linked lists are well known in the art, the fact that

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the prior art has not combined them as recited in the claims constitutes evidence of non-obviousness. (*Id.* at 7-8.)

Examiner's Findings and Conclusions

The Examiner finds that one of ordinary skill would have found it obvious to substitute Knuth's circularly linked list for Bonomi's regular linked list to store the multicast groups therein since the circularly linked list would allow access to the multicast data in a similar manner as with the linked list. (Ans. 12-13.)

II. ISSUE

Have Appellants shown that the Examiner erred in combining Bonomi and Knut to teach forming circularly-linked lists containing multicast data, as recited in independent claim 1?

III. PRINCIPLES OF LAW

The US Supreme Court has held that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007).

The Court further instructs that "[o]ften it will be necessary for a court to look to interrelated teachings of multiple patents; . . . and the background knowledge possessed by a person having ordinary skill in the art, all in order

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to determine whether there was an apparent reason for combining the known elements in a the fashion claimed by the patent at issue." *Id.* at 418.

Additionally, the Court instructs that "'[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements. Instead, *there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness'* ... however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* (citation omitted) (emphasis added).

IV. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Bonomi

1.   Bonomi discloses an asynchronous transfer mode (ATM) switch that supports multicast transmissions of data frames. (Title, abstract.) In particular, upon receiving multicast data cells for transmission to a plurality of output branches, a queue manager within the ATM maintains in a queue a single copy of each of the received cells as a linked list, which contains the processing order of the cells as well as their respective addresses, and associated data paths. (Col. 10, l. 61-col. 11, l. 5.)

2.   The queue manager maintains for each queue ID (QID) an associated port mask through which a particular cell will be transferred to a designated output branch. The port mask selectively identifies the output branches to which the cells will be transmitted. (Col. 11, ll. 23-38.) The port mask subsequently identifies the cells within a physical queue that will be transmitted to selected output ports. (Col. 14, ll. 3-8.)

3.   Upon traversing a particular cell, the queue manager deletes the cell from the queue. (Col. 8, ll. 19-22.)

4.   As each cell is received at a port, the scheduler updates a port mask entry associated therewith to indicate that the cell needs not be transmitted to that port any longer. (Col. 14, ll. 17-25.)

Knuth

5.   Knuth discloses that one advantage of circularly-linked lists is that they allow access into the list at any given point. (P. 270.) Knuth also discloses that a circularly linked list can be used to represent a linear structure since they are in some instances equivalent structures (P. 272).

V. ANALYSIS

Independent claim 1 requires, *inter alia*, forming circularly-linked lists containing multicast data.

As set forth in the Findings of Fact section, Bonomi discloses storing multicast data cells in a linked list. (FF. 1.) Further, Knuth discloses that in some instances a circularly- linked list can be used to represent a linked list,

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and that circularly-linked lists offer the advantage of allowing for entry at any point of the list. (FF. 5.)   We agree with the Examiner that the ordinarily skilled artisan would have readily appreciated that Bonomi's linked list can be replaced by an equivalent circularly linked list to store the multicast data cells therein as the circularly-linked list would offer more flexibility by allowing for entry at any point of the list.

As set forth in the Principles of Law section above, while it is often necessary for an Examiner to identify a reason for combining the familiar elements obtained from the prior art in establishing a prima facie case of obviousness, the identification of such a reason is not a sine qua non requirement. So long as the Examiner provides an articulated reasoning with some kind of a rational underpinning to substantiate the obviousness rejection, such a conclusion is proper. In this case, the Examiner provided more than just a mere conclusion of obviousness. The Examiner noted on page 5 of the Answer that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the references since Knuth discloses that using a circularly-linked list allows for entry into the list at any point." Such a statement suffices as an articulated reasoning. We therefore find that the cited teachings of Bonomi and Knuth are merely known elements that perform their ordinary functions to predictably result in a circularly-linked list that contains multicast data cells for transmission.

Further, even if such a reason for combining the known elements of the cited references were not provided, we find that a person of ordinary

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skill in the art would still be readily apprised of such a rationale from the predictable system that ensues from the proffered combination. As noted above, the case law allows the Examiner to look to the state of the prior art including the knowledge of the ordinarily skilled artisan to surmise such a reason for combining the known elements of the prior art. Consequently, we reiterate that once a person of ordinary skill in the art recognizes that the combination of certain known elements performing their ordinary functions yields a predictable result, the ordinarily skilled artisan will ipso facto be apprised of the reason for combining such elements. It therefore follows that Appellants have not shown error in the Examiner's rejection of claim 1.

Because Appellants argue the rejection of claims 1-3, 7, 8, 10, 11, 13, and 15 as a single group, claims 2, 3, 7, 8, 10, 11, 13, and 15 fall with claim 1 in accordance with 37 C.F.R. § 41.37(c)(1)(vii).

Regarding the rejection of claim 4, Appellants argue that the combination of Bonomi and Knuth does not teach excluding from the multicast session a destination node of the list from the received data. (Br. 8.) According to Appellants, Bonomi's disclosure of removing entries from the list as each cell is transmitted does not teach or suggest removing a destination node from the list. *Id.* We agree with Appellants. However, we note that Bonomi not only discloses a mechanism for updating cell entries in the queue to be transmitted to the nodes, but the reference also discloses a port mask that identifies selected output ports to which to transmit the cell entries. (FF. 2, 4.) Consequently, we find that by selecting which output

ports to transfer the received cell data to, Bonomi teaches or suggests excluding the non-designated ports from receiving the multicast data. It follows that Appellants have not shown that the Examiner erred in rejecting claim 4.

Regarding claims 5 and 6, Appellants reiterate the arguments previously raised for the patentability of claim 4. (*Id*. at 9.) We addressed those arguments in our discussion of claim 4 above, and we found them unavailing. Further, Appellants recite the additional limitations of the cited claims, and generally allege that the combination of Bonomi and Knuth does not teach or suggest such limitations. In response, the Examiner finds that Bonomi's queue manager performs the cited functions by determining which received data cells should be forwarded to a selection of output ports. (Ans. 17.) We note that Appellants' response does not persuasively rebut the Examiner's rejection. Appellants are reminded that merely reciting what a claim recites or making a general allegation of patentability is not a separate patentability argument. *See Ex parte Belinne*, No. 2009-004693, slip op. at 7-8 (BPAI Aug. 10, 2009) Therefore, we find that Appellants' mere recitation of the claim language and re-statement of the Examiner's position without showing deficiencies therein does not constitute a persuasive rebuttal of the Examiner's rejection. (Informative.) It follows that Appellants have not shown error in the Examiner's rejection of claims 5 and 6.

Regarding claim 9, Appellants argue that Bonomi's disclosure of
ordering cells within a queue based on a cell order suggests entering the
queue through the first element, and thus teaches away from entering the list
through the destination node from which the data is entered, as recited in the
claim. (Br. 9-10.) In response, the Examiner finds that Bonomi teaches the
disputed limitation as a head-pointer to the oldest entry in the queue
designating the point of entry to the destination node which initially sent the
data. (Ans. 18-19.) We agree with the Examiner that the oldest destination
node in the queue qualifies as the first element within the list or an address
of the destination node through which data can be entered and circulated in
the list. Besides, as discussed above, the substitution of Knuth's circularly
linked list for Bonomi's linked list would enable the entry of the list at any
desired node therein including the node through which data was initially
entered. It follows that Appellants did not show error in the Examiner's
rejection of claim 9.

Since Appellants reiterate the same arguments of claim 9 for claim 15,
these claims fall together.

SUMMARY

Appellants have not have established that the Examiner erred in
rejecting claims 1-11, and 13-15 under 35 U.S.C. § 103(a) as being
unpatentable over the combination of Bonomi and Knuth. We therefore
affirm this rejection.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2009).

AFFIRMED

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RYAN, MASON & LEWIS, LLP
90 FOREST AVENUE
LOCUST VALLEY, NY 11560